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second input torque estimating unit for estimating an input-torque of said automatic transmission using torque-converter characteristic;

selecting unit for comparing the ratio between turbine revolution speed and engine revolution speed ( $N_t/N_e$ ) and a threshold value, selecting one of the estimated values from the first input-torque estimating unit and the second input-torque estimating unit in accordance with the comparison result, and outputting the estimated value selected as an estimated torque value, and

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control unit for controlling the automatic transmission using the estimated torque value outputted from the selecting unit.

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13. Control system for an automatic transmission with torque converter comprising:

first input torque estimating unit for estimating an input-torque of said automatic transmission using an engine torque characteristic;

second input torque estimating unit for estimating an input-torque of said automatic transmission using torque-converter characteristic;

selecting unit for comparing the ratio between turbine revolution speed and engine revolution speed ( $N_t/N_e$ ) and a threshold value, selecting the estimated value from the first input-torque estimating unit when the ratio ( $N_t/N_e$ ) is not smaller than the threshold and selecting the estimated value from the second input-torque estimating unit when the ratio ( $N_t/N_e$ ) is less than the threshold, and outputting the estimated value selected as an estimated torque value; and

control unit for controlling the automatic transmission using the estimated torque value from the selecting unit.

14. Control system for an automatic transmission with torque converter comprising:

first input torque estimating unit for estimating an input-torque converter comprising:

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second input torque estimating unit for estimating an input-torque of said automatic transmission using an engine torque characteristic;

storing unit for comparing the ratio between turbine revolution speed and engine revolution speed ( $N_t/N_e$ ) and a threshold value, and memorizing a deviation of the estimated values from the first input-torque estimating unit and the second input-torque estimating unit when the ratio ( $N_t/N_e$ ) is less than the threshold;

calculation unit for comparing the ratio between turbine revolution speed and engine revolution speed ( $N_t/N_e$ ) and a threshold value, and calculating an estimated torque by correcting the estimated value from the first input-torque estimating unit using the calculated deviation when the ratio ( $N_t/N_e$ ) is not smaller than the threshold; and

control unit for controlling the automatic transmission using the estimated torque value from the selecting unit.--